TENNESSEE VALLEY AUTHORITY	EXAMINATION SUMMARY AND RESOLUTION SHEET	REPORT NUMBER: R.P0437

PROJECT: *WBN* UNIT: *2* CYCLE *00*				COMPONENT ID: *SIF-D196-03*	
EXAMINATION METHOD				SYSTEM: SIS	ISI DWG NO: *ISI-2063-W-09* Rev 2
MT ☐	PT ☐	UT ☑	VT ☐	CONFIGURATION:	CATEGORY
PROCEDURE: *N-UT-84*		REV *0*	TC: N/A	*VLV* TO *EL*	*B-J*

EXAMINER:	EXAMINER:	EXAMINER:	EXAMINER:
Jason Nissen	N	N	N
LEVEL:	LEVEL: A	LEVEL: A	LEVEL: A

Total coverage calculated to be approximately 68.21 %

A single sided phased array ultrasonic examination was performed to meet the requirements of ASME Section XI preservice inspection.

A phased ARRAY 1.5 MHz, 16 element probe with a 25°-70° shear wave sector scan display was utilized to perform the examination.

A phased ARRAY 1.5 MHz, dual 15 element probe with a 40°-70° refracted longitudinal wave sector scan display was also utilized to perform the examination.

No recordable indications observed.

68.21 % examination volume achieved due to valve and elbow intradose configuration.

RESOLUTION BY:	REVIEWED BY:	ANII:
Jason Nissen		DATE: 6/23/09
LEVEL II DATE: 6-8-09	LEVEL: III DATE: 6-9-09	Page: 1 OF 2

ACCESS: FORMS DATABASE R-10/04/01

TENNESSEE VALLEY AUTHORITY	PHASED ARRAY ULTRASONIC CALIBRATION DATA SHEET	REPORT NUMBER: R-P 0437

PROJECT: WBN UNIT 2 CYCLE: Ø	CALIBRATION DATE: 6-8-09
PROC.: N-UT-84 REV: Ø TC: N/A	CALIBRATION BLOCK NO.: WB 83 TEMP: 73.8F
INSTR. MFG: GEIT DUE DATE: 8-6-09	SIMULATOR BLOCK NO: N/A
MODEL/TYPE: PHASOR XS M & TE ID: E41821	THERMOMTER S/N: 562776 DUE DATE: 12-22-09
SOFTWARE REVISION: 1.2	COUPLANT Ultragel II BATCH: 06225 F
EXAM TYPE: SHEAR☒ LONG☐ RL☐	EXAM: ISI☐ PSI☒ LIMITATIONS: Y☒ N☐
CABLE TYPE: 1D LENGTH: 3M #CNT: Ø	

ANGLE VERIFICATION

BLOCK TYPE: Rompas	S/N: 789629		NOMINAL ANGLE		ACTUAL ANGLE
REFLECTOR			LOW: 25° HIGH: 70°		LOW: 25° HIGH: 70°
SCAN DIRECTION	NOTCH DEPTH	SDH. DEPTH	REF. SENS/AMPL	ANGLE / METAL PATH	EXAM SENS.
AXIAL	1.00	N/A	6.0 / 80%	45° / 1.461	24.0
CIRCUMFERENTAIL	1.00	N/A	6.0 / 80%	45° / 1.461	28.0

INSTRUMENT SETTINGS

GAIN TOGGLE:	dBD: Ø	dBA: 24.0

PROBE DATA			
PROBE MFG: GEIT	MODEL: 115-000-688		
S/N: Ø1XC8H	APERTURE SIZE: .398		
ELEMENTS: 16	PITCH: .025		
FREQ: 1.5	ELEVATION: .394		
CONFIGURATION: ARRAY	SHAPE: RECTANGLE		

SCAN DATA	
ELECTRONIC	*SCAN PATTERN*
TYPE: Sector	ANGLE START: 25°
FOCAL POINT: Unfocused	ANGLE STOP: 70°
WAVE TYPE: Shear	ANGLE STEP: 1°
RL FOCAL LAW: N/A	
LEG: 1.0	MATERIAL THICKNESS: 1.000

WEDGE DATA			
PROBE CHECK: ☒ PRE-EXAM ☒ POST EXAM			
WEDGE MFG: GEIT	VELOCITY: .0920		
MODEL: 360-141-085	X OFFSET: ~~.09~~ 836.835		
WEDGE ANGLE: 35°	Z OFFSET: .481		
CONTOUR: FLAT	ELEMENT 1 POSITION: LOW END		

APERTURE	
NUMBER OF STEPS: 1	FIRST ELEMENT: 1
APERTURE SIZE: 16	APERTURE STEP: 1
DISPLAY DATA	ANGLE CORRECTION ☒ON ☐OFF

PART DATA	
MATERIAL: STAINLESS STEEL	VELOCITY: .1220

CALIBRATION TIMES			
INITIAL TIME: 0900	FINAL TIME: 1145		
VERF. TIMES	1003	1030	1102	N/A

UT DATA			
BASE	*PULSER*	*RECIEVER*	*NRM/TCG*
DELAY: 0.0	VOLT: 150	FREQ: BB 0.6-6.5	CYC GAIN CNTL 0.0
	WIDTH: 330	ASCAN RECT: FULLWAVE	
MATERIAL: STAINLESS STEEL	PRF VALUE: AH		

LINEARITY CHECK

VERTICAL											
SIGNAL 1	100	90	80	70	60	50	40	30	20	10	
SIGNAL 2	50	45	40	35	30	25	20	15	10	5	

ATTENUATOR								
GAIN	SET	-6 dB	-12 dB	SET	+12	SET	+6
AMP	80	32-48	16-24	20	64-96	40	64-96
		40	20		80		80

COMMENTS:	WELDS/ITEMS EXAMINED:
	SIF-D196-03
	SIF-D196-04
	SIS-137

EXAMINER:	EXAMINER:	REVIEWER:	ANII:
[signature]	N/A	[signature]	DATE: 6/23/09
LEVEL: II	LEVEL:	LEVEL: III DATE: 6-9-09	PG. 2 OF 7

TENNESSEE VALLEY AUTHORITY	PHASED ARRAY ULTRASONIC CALIBRATION DATA SHEET	REPORT NUMBER: R. P0437

PROJECT: WBN	UNIT 2	CYCLE: Ø	CALIBRATION DATE: 6-8-09
PROC.: N-UT-84	REV: Ø	TC: N/A	CALIBRATION BLOCK NO.: WB 83 TEMP: 73.8F
INSTR. MFG: GEIT	DUE DATE: 8-6-09		SIMULATOR BLOCK NO: N/A
MODEL/TYPE: PHASOR XS	M & TE ID: E41821		THERMOMTER S/N: 562776 DUE DATE: 12-22-09
SOFTWARE REVISION: 1.2			COUPLANT Ultragel II BATCH: 06225 F
EXAM TYPE: SHEAR☐ LONG☐ RL☒			EXAM: ISI☐ PSI☒ LIMITATIONS: Y☒ N☐
CABLE TYPE: 2 D	LENGTH: 2 M	#CNT: Ø	

ANGLE VERIFICATION

BLOCK TYPE: Rompas	S/N: 789629		NOMINAL ANGLE		ACTUAL ANGLE
REFLECTOR			LOW: 40° HIGH: 70°		LOW: 40° HIGH: 70°
SCAN DIRECTION	NOTCH DEPTH	SDH. DEPTH	REF. SENS/AMPL	ANGLE / METAL PATH	EXAM SENS.
AXIAL	1.00	N/A	15.0 / 80%	50° / 1.574	22.0
CIRCUMFERENTAIL	N/A	N/A	N/A	N/A	N/A

INSTRUMENT SETTINGS

GAIN TOGGLE:	dBD: Ø	dBA: 22.0

PROBE DATA		SCAN DATA	
		ELECTRONIC	*SCAN PATTERN*
PROBE MFG: GEIT	MODEL: 115-000-481	TYPE: Sector	ANGLE START: 40°
S/N: 01TCT6	APERTURE SIZE: .748	FOCAL POINT: unfocused	ANGLE STOP: 70°
ELEMENTS: 2(3x5)	PITCH: 4 x .150	WAVE TYPE: Longitudinal	ANGLE STEP: 1°
FREQ: 1.5	ELEVATION: 2 x .472	RL FOCAL LAW: D07F100	
CONFIGURATION: ARRAY	SHAPE: RECTANGLE	LEG: 1.3	MATERIAL THICKNESS: 1.00

WEDGE DATA		APERTURE	
PROBE CHECK: ☒ PRE-EXAM ☒ POST EXAM			
WEDGE MFG: GEIT	VELOCITY: .0920	NUMBER OF STEPS: 1	FIRST ELEMENT: 1
MODEL: 360-151-028	X OFFSET: .591	APERTURE SIZE: 10	APERTURE STEP: 1
WEDGE ANGLE: 18°	Z OFFSET: .472	DISPLAY DATA	ANGLE CORRECTION ☒ON ☐OFF
CONTOUR: FLAT	ELEMENT 1 POSITION: LOW END	UT DATA	

PART DATA		BASE	PULSER	RECIEVER	NRM/TCG
MATERIAL: Custom	VELOCITY: .2283	DELAY: 0.0	VOLT: 150	FREQ: BB 0.6-6.5	CYC GAIN CNTL 0.0
CALIBRATION TIMES			WIDTH: 330	ASCAN RECT: FULL WAVE	
INITIAL TIME: 0935	FINAL TIME: 1140	MATERIAL: Custom	PRF VALUE: AH		
VERF. TIMES 1105	1114				

LINEARITY CHECK

VERTICAL											
SIGNAL 1	100	90	80	70	60	50	40	30	20	10	
SIGNAL 2	50	45	40	35	30	25	20	15	10	5	

ATTENUATOR								
GAIN	SET	-6 dB	-12 dB	SET	+12	SET	+6
AMP	80	32-48	16-24	20	64-96	40	64-96
		40	20		80		80

COMMENTS:	WELDS/ITEMS EXAMINED:
	SIF-D196-03

EXAMINER:	EXAMINER:	REVIEWER:	ANII:
LEVEL: II	LEVEL: N/A	LEVEL: III DATE: 6-9-09	DATE: 6/23/09
			PG. 3 OF 7

TENNESSEE VALLEY AUTHORITY	MANUAL ULTRASONIC PIPING EXAMINATION DATA SHEET	REPORT NUMBER R-P0437

PROJECT: WBN UNIT/CYCLE 2/00
SYSTEM: SIS
WELD I.D.: SIF-D196-03
CONFIG.: VLV TO EL
FLOW

EXAMINATION DATE 6-8-09
START TIME: 1052 END TIME: 1111
EXAM SURFACE ☐ ID ☒ OD
MATERIAL TYPE: ☐ CS ☒ SS ☐ CSCL ☐ CCSS
SURFACE TEMP.: 80.8 PYRO NO. 562776

PROCEDURE: N-UT-34 REV: Ø TC: N/A
Wo REFERENCE: WELD 4
Lo REFERENCE: TDC

EXAMINATION ANGLE	25°/70° DEG.	40°RL/70°RL DEG.
AXIAL SCAN SENSITIVITY	35°/70° 24.0 dB	22.0 dB
CIRC. SCAN SENSITIVITY	25°/70° 28.0 dB	N/A dB

IND NO.	L (in) FROM REF. L1	L Max	L2	AT MAX AMP W MAX	MP MAX	D MAX	MAX AMP % DAC	EXAM NO. 3-14	NOM. ANG.	NRI	INDICATION INFORMATION: TYPE, DAMPING, ETC.
								4	40°RL/70RL	☒	
								4	35°/70°	☒	
								5	25°/70°	☒	
								6	25°/70°	☒	
										☐	
										☐	

REMARKS/LIMITATIONS Examination scans performed maintaining 5-20% I.D. ROLL. Exam was one sided due to valve. Exam also limited due to elbow intradose to valve configurations.

EXAMINER: [signature] LEVEL: II
EXAMINER: N/A LEVEL: N/A
REVIEWED BY: [signature] LEVEL: III DATE: 6-9-09

ANII: [signature]
DATE: 6/23/09
PAGE 4 OF 7

ACCESS: FORMS DATABASE 10/18/01

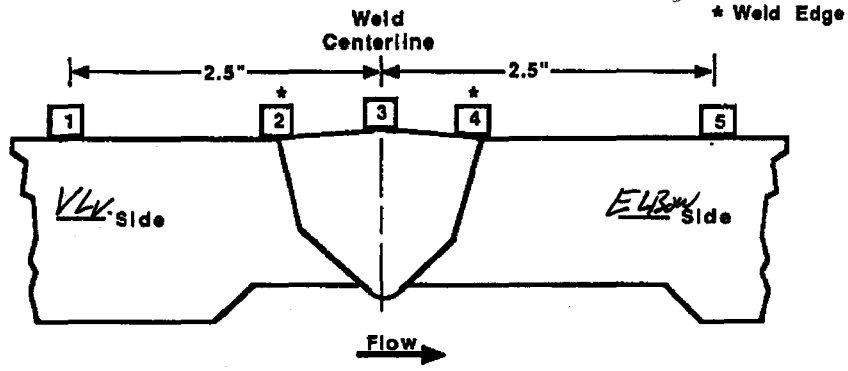
TVA	WALL THICKNESS PROFILE SHEET	REPORT NO: R.P0437

PROJECT: WATTS BAR NUCLEAR
UNIT: 2

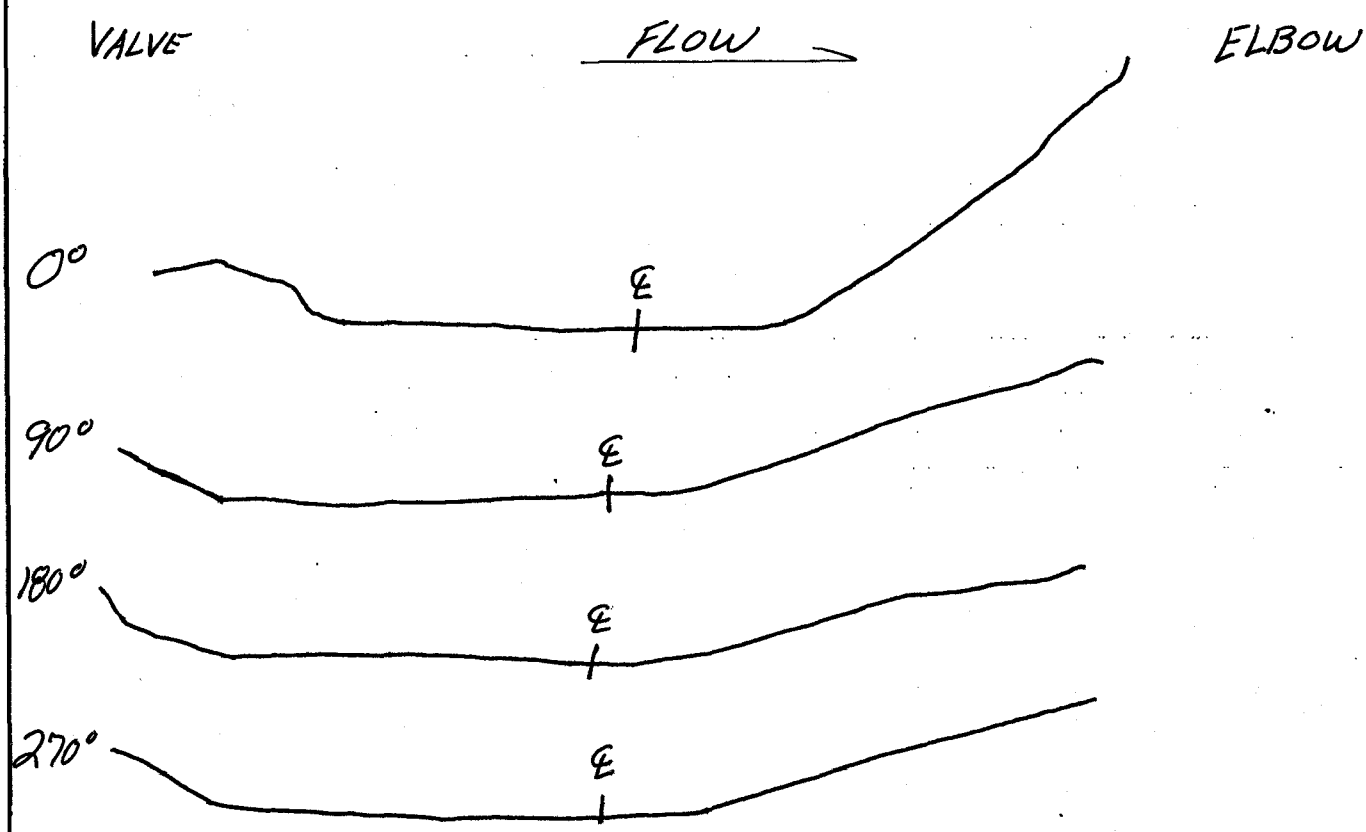
WELD NO: SIF-D196-03
SYSTEM: SIS

Record Thickness Measurements As Indicated, Including Weld Width, Edge-To-Edge At 0°

Position	0°	90°	180°	270°
1	N/A	N/A	N/A	N/A
2	1.312	1.355	1.372	1.387
3	1.233	1.123	1.137	1.170
4	1.064	1.086	1.076	1.143
5	1.428	1.249	1.203	1.236



CROWN HEIGHT: FLUSH
CROWN WIDTH: 1.0
DIAMETER: 10.0
WELD LENGTH: 35.0



EXAMINER: [signature]
LEVEL: II
DATE: 6-8-09

REVIEWED BY: [signature]
LEVEL: III
DATE: 6-9-09

ANII: [signature]
DATE: 6/23/09
PAGE 5 OF 7

TVA 19668 (NP-5-89)

1-108-999-44

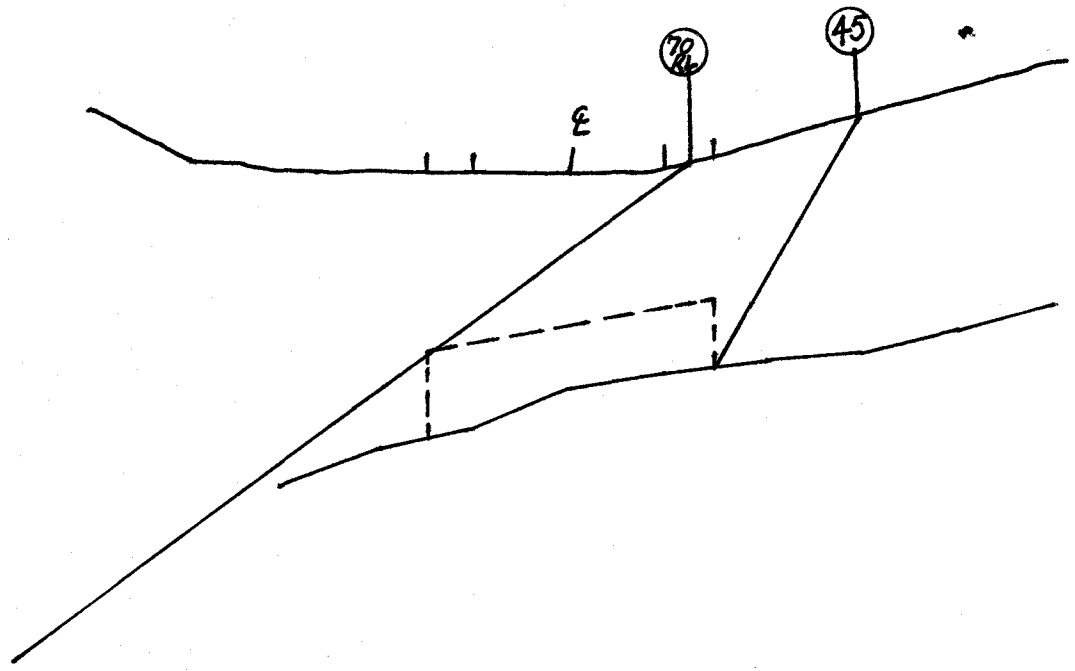
TVA Office of Nuclear Power	PROJECT: WATTS BAR NUCLEAR SYSTEM: SIS UNIT: 2 WELD NO: SIF-D196-03	REPORT NO.: R-P0437

FLOW

VALVE

ELBOW

90°



Plot shown represents primary angle of 45°, phased array angles used 25°-70°, RL angles 40°-70°

BY: [signature] LEVEL: II DATE: 6-8-09 PAGE 6 OF 9

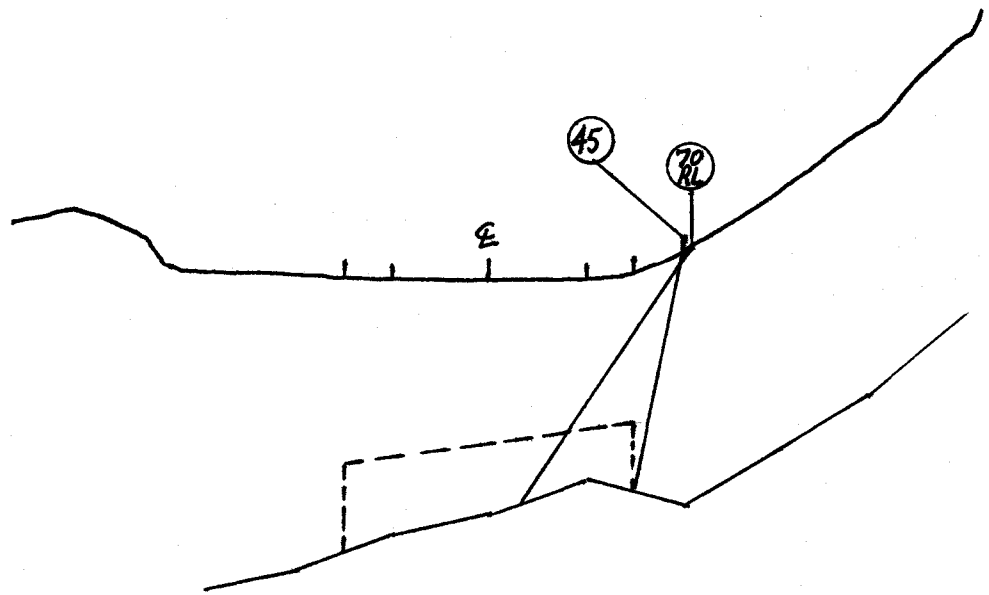
TVA Office of Nuclear Power	PROJECT: WATTS BAR NUCLEAR SYSTEM: SIS UNIT: 2 WELD NO: SIF-D196-03	REPORT NO.: R.P0437

FLOW →

VALVE

ELBOW

0°



Plot shown represents primary angle of 45°, phased array angles used 25°-70°, RL angles 40°-70°

BY: [signature] LEVEL: II DATE: 6-8-09 PAGE 7 OF 7

R-P0437

TVA Procedure
N-GP-31

Attachment 3

SIF-D196-03

Item 1	Required examination Volume in sq. in. **(width x height)**	1.55	0.42	0.651	sq. in.
Item 2	Number of **scan directions**			4	directions
Item 3	Total Scan **volume** in sq. in.			2.604	sq. in.
Item 4	Total **length** of weld			35	inches
Item 5	Total required **exam volume** in cubic inches			91.14	cu. in.
Item 6	**Exam volume achieved** (sq. in.) in direction 1 X **length of weld achieved**	0	0	0	cu. In.
Item 7	**Exam volume achieved** (sq. in.) in direction 2 X **length of weld achieved**	0.651	25.5	16.6005	cu. In.
Item 8	**Exam volume achieved** (sq. in.) in direction 3 X **length of weld achieved**	0.651	35	22.785	cu. In.
Item 9	**Exam volume achieved** (sq. in.) in direction 4 X **length of weld achieved**	0.651	35	22.785	cu. In.
Item 10	Determined the **achivied exam volume** add 6, 7, 8 & 9			62.1705	cu. In.
Item 11	Exam **volume percentage** item 10/item 5 x 100			68.21429	%

INFORMATION ONLY

JPN 6/8/09
Limited due to valve and elbow intradose